

## REPORT

on

BROCK BROS. MINE AT RICHARDSON'S CREEK, MANGANA.

SECTION NO. 10848/M

Introduction

At the request of Mr. C.A. Brock I proceeded to Mangana on Thursday the 21st July in order to examine a mine at Richardson's Creek. Some difficulty was being experienced in following the vein as the result of a fault and it was hoped that an examination of the mine would prove helpful.

Location and Access

The section on which the mine is situated lies to the north of Richardson's Creek and is distant about two miles to the north-west of Mangana township. The mine workings are on the western fall of a hill known as Buckland's Freehold and are about fifteen or twenty chains north of Richardson's Creek. The mine may be reached by following a track which branches off the Tower Hill Road a little to the west of Mangana township and follows Richardson's Creek for a little over a mile. After leaving the creek the track ascends a spur and trends in a general northerly direction to the mine workings.

Geology

The rocks in the vicinity of the lease are the Cambro-Ordovician slates and quartzites of the Mathinna Series. Near the mine they are principally dark coloured quartzites. The rocks strike in a general northerly to north-westerly direction and dip to the west or south-west. There appears to have been a good deal of faulting, most of the faults striking with the country. The faults may be vertical or inclined at steep angles to the east or west.

The Lode

This consists of a quartz vein varying in width from one to two feet or more. It strikes in a general northerly direction and dips to the west at an angle of 65 deg. to 70 deg. It contains gold and a little pyrite and arsenopyrite. The vein has been exposed at the surface by trenching and appears to consist of two main portions which are separated by a fault zone.

The principal mine workings are shown on the accompanying plan. The southern portion of the vein has been uncovered at the surface by a series of trenches extending over a length of sixty feet. At the northern end of this portion of the vein a hole has been sunk to a depth of six feet. This has exposed two feet of quartz which is dipping to the west at an angle of 65 deg. At the southern end, a winze sunk on the vein connects with the adit level described below.

Below the southern surface workings an adit has been driven to cut the vein at a depth of 50 feet below the outcrop. From the adit the vein has been driven on for a distance of 21 feet north and 29½ feet south. In the face of the north drive the vein has been cut off by a fault which strikes a little to the east of north and dips to the west at an average angle of 55 deg. In the end of the south drive the vein has also been faulted. In the latter case there appear to be a number of faults all of which have influenced the lode to some extent. The most prominent fault at the end of the south drive strikes a little to the east of north and dips to the east. The southern continuation of the lode has not been picked up beyond this fault although a surface trench has been put in an endeavour to locate it. A small hole has been sunk on the vein at the end of the south drive and in it quartz is exposed over a width of three feet. Irregular patches of quartz also occur on the north wall of the east crosscut at the end of the south drive and these appear to be portions of the the vein displaced by minor faults. The end of the south drive marks the end of the vein at the adit level. The sketch in the upper portion of the plan is an attempt to illustrate the occurrence diagrammatically.

From a depth of thirty feet below the surface an intermediate south drive has been put in from the winze. In the southern end of this level the vein also appears to be cut off by the same east dipping fault.

About 115 feet north of the adit the continuation of this vein has also been exposed by surface trenching. Here the vein strikes N 10 deg. E. and dips to the west at an angle of 70 deg. It's average width is approximately 2 feet. At the southern end of these workings a winze has been sunk to a depth of about twelve feet. South of the winze this vein is also cut off by a fault whose strike is a little to the east of that of the vein.

It is uncertain whether the fault at the southern end of the northern workings and that at the northern end of the southern (or adit) workings are one and the same. If they are there would be little chance of picking up the lode by continuing to drive north from the adit along the western side of the fault plane. A deep trench half way between the northern and southern workings would settle this point.

In order to follow the vein at the end of the south drive from the adit, it is suggested that a winze be sunk on the body of quartz now exposed in the end of the south drive. This should yield some information as to the behaviour of the lode with respect to the fault. The information with regard to this fault (or series of faults) is too indefinite to enable sound conclusions to be drawn. A further examination of the mine after this work is completed should yield more definite information.

In view of the conclusions drawn below it is not recommended that this work be carried out until such time as the mine has been proved to have a reasonable chance of paying it's way.

#### Conclusions:

As a considerable amount of work in opening up the property had been carried out prior to my examination, it seemed inadvisable to recommend any further development work until such time as some of the ore won from development could be tested.

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About forty tons of ore were at grass, and, of this, two heaps comprising some fifteen tons were said to average approximately two ounces of gold per ton. About twelve or fifteen cwts. of ore had been bagged and this was also said to average about two ounces per ton.

The following samples were taken, Nos. 1 and 2 being from dumps of supposedly high grade ore.

Sample No. 1 Average grab sample from a dump of approximately two tons at the entrance of the adit.

Sample No. 2 Average grab sample from a dump near the winze.

Sample No. 3 A handful from each of the bags of ore.

Sample No. 4 From the bottom of the hole at the south end of the main drive.

The results of these samples are as follows:

		ozs.	dwts.	grms.
Sample No. 1	Gold	1	13	5
	Silver	0	2	8
Sample No. 2	Gold	0	2	21
	Silver	0	1	1
Sample No. 3	Gold	0	4	7
	Silver	0	0	22
Sample No. 4	Gold	0	1	1
	Silver	0	0	5

It will be observed that, with the exception of Sample No. 1, these results are distinctly discouraging, and it would appear that the average grade of the ore is far below that anticipated. Before any further work is done on the property it would be advisable to sample systematically the ore now at grass. The samples taken may be regarded as a good rough guide to it's value but are not sufficient to enable the value of the whole to be accurately gauged.

In the event of the sampling results being favourable a trial crushing of say 10 tons could be put through the Old Boy's battery at Mathinna. In connection with this crushing the following costs would have to be met.

Cartage to Old Boy's Mine Mathinna	£1.10.0
Crushing etc.	£1. 0.0
Total	£2.10.0

Hence the ore would have to average over 10 dwts. per ton in order to meet expenses to the value of the gold won being a little over £5 per ounce.

The immediate future of the mine should depend on the results of the work outlined.

A copy of the assay results is attached herewith.